

Software Development Lifecycle (SDLC) Models (SWEN90016)

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Overview

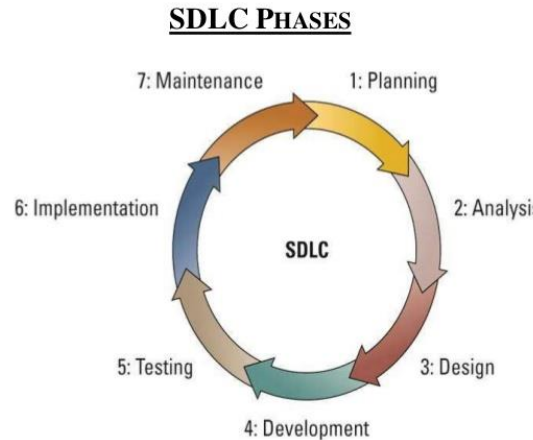
- **Motivation SDLC models**
- **Activities/phases in software development**
- **Prescriptive models**
- **Agile models**

Motivation

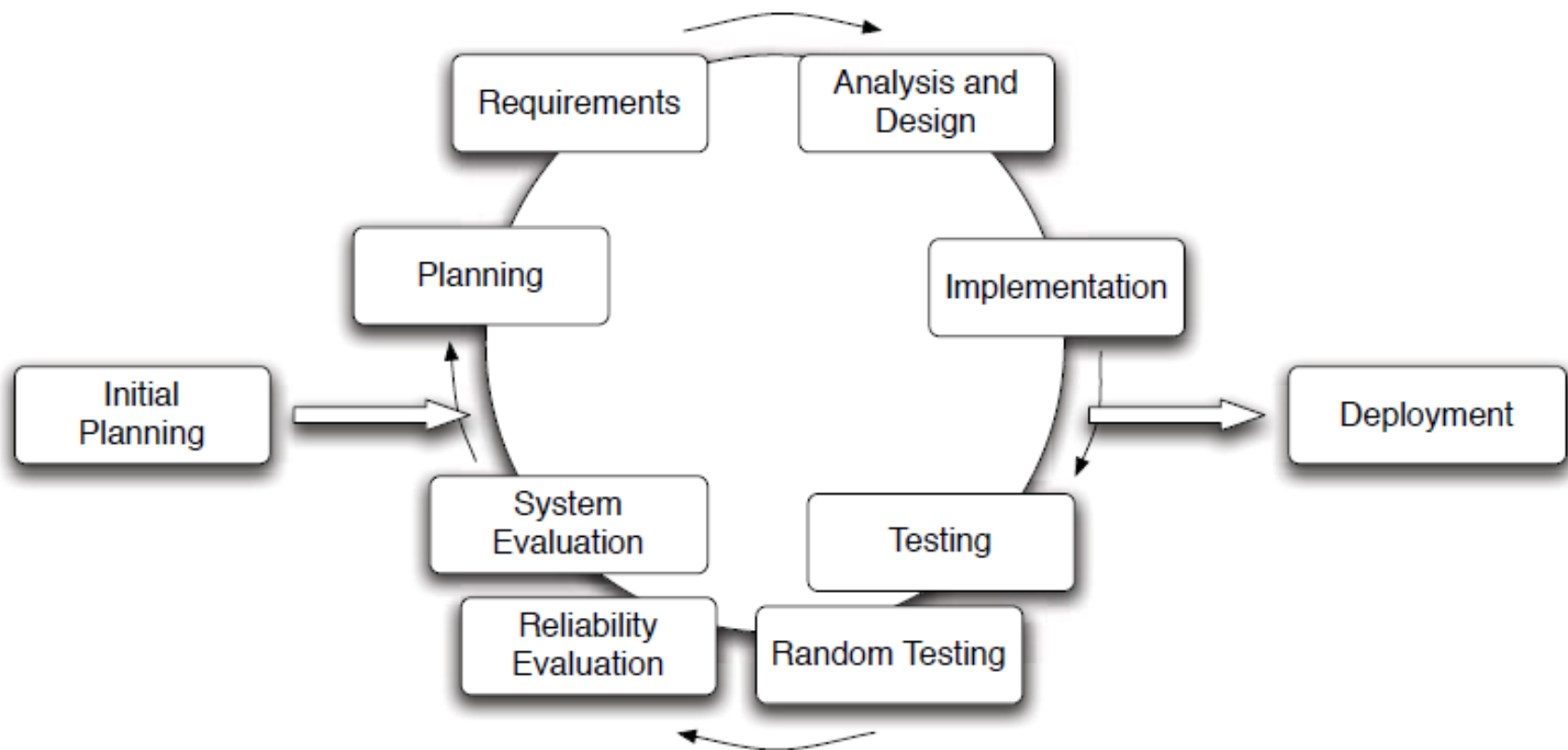
- **What is a SDLC model?**
- **How did SDLCs come about?**
- **Why do we need a SDLC model?**
- **Why do you need to learn about SDLC models?**

Activities in software development

- Requirements engineering
- System/architectural design
- Implementation
- Integration
- Testing
- Delivery and release
- Maintenance

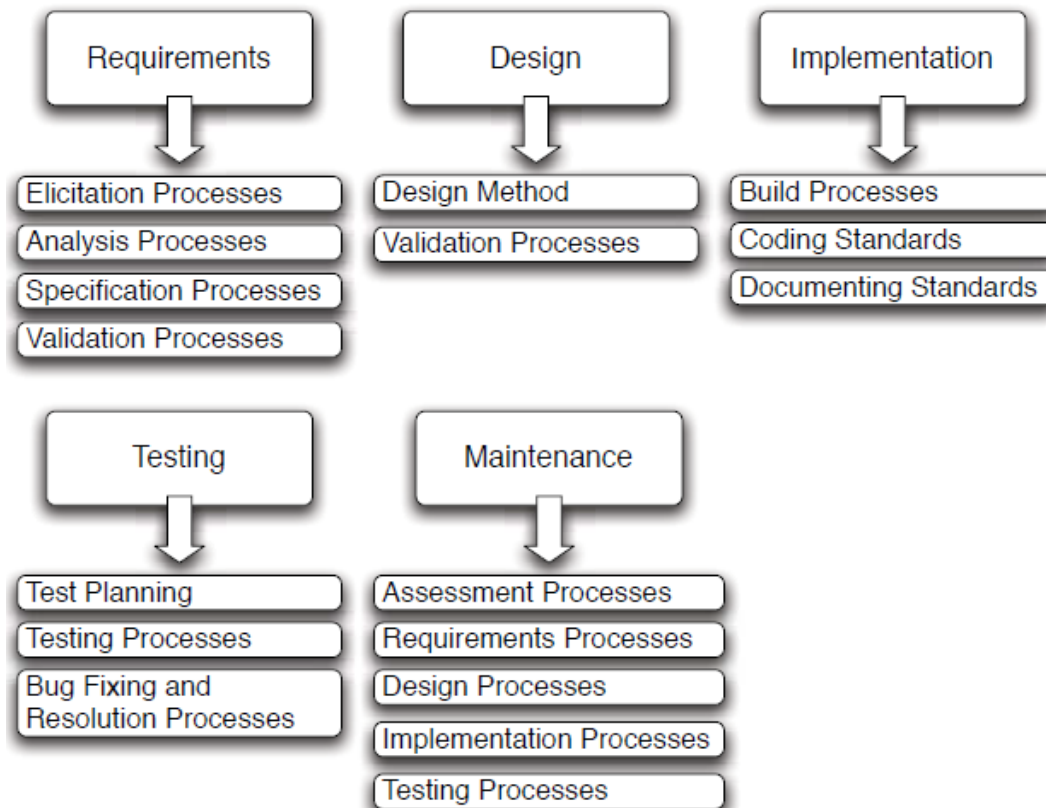


Extending the activities



Designing processes

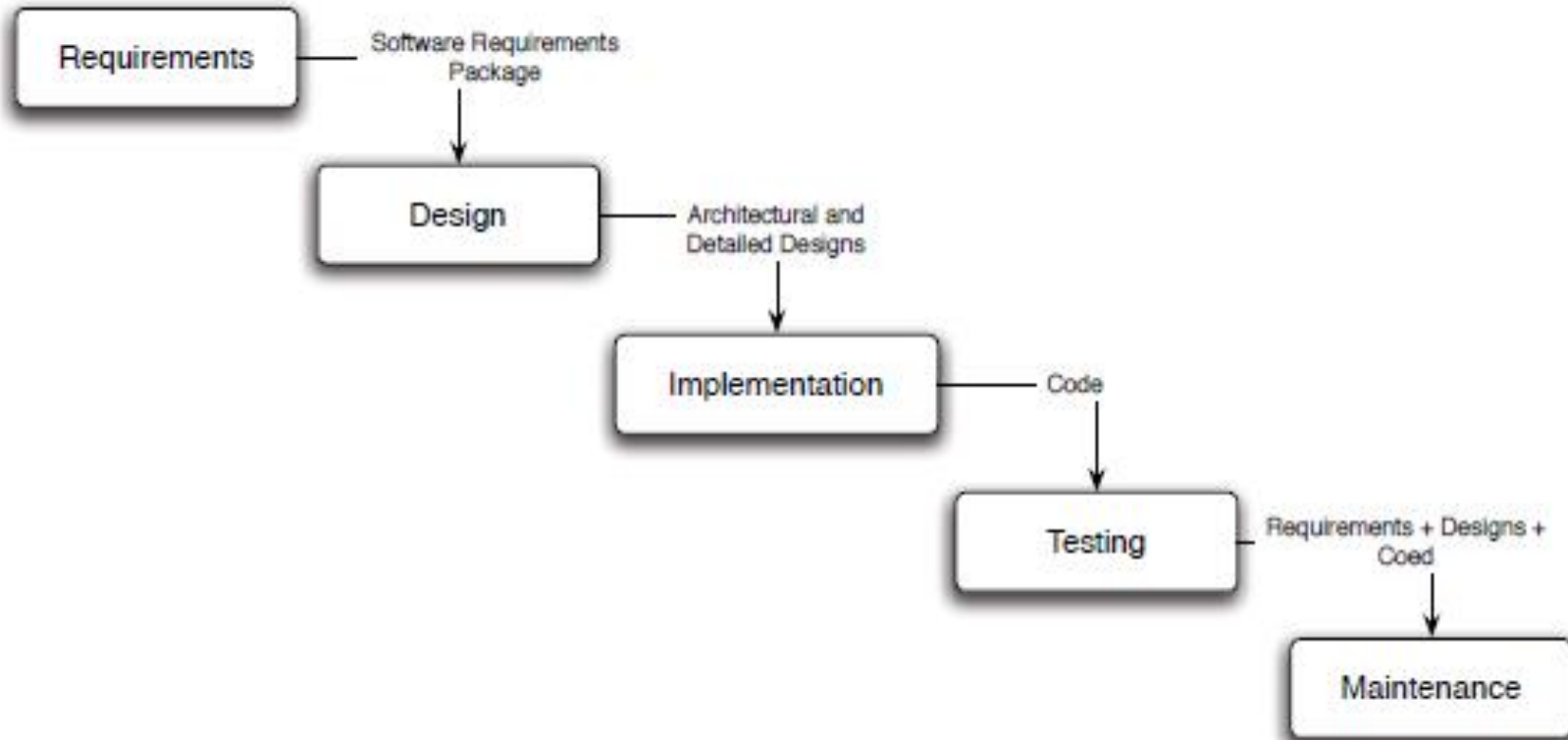
- What steps do we need to follow to produce outputs from input?
- What techniques and tools will we use?



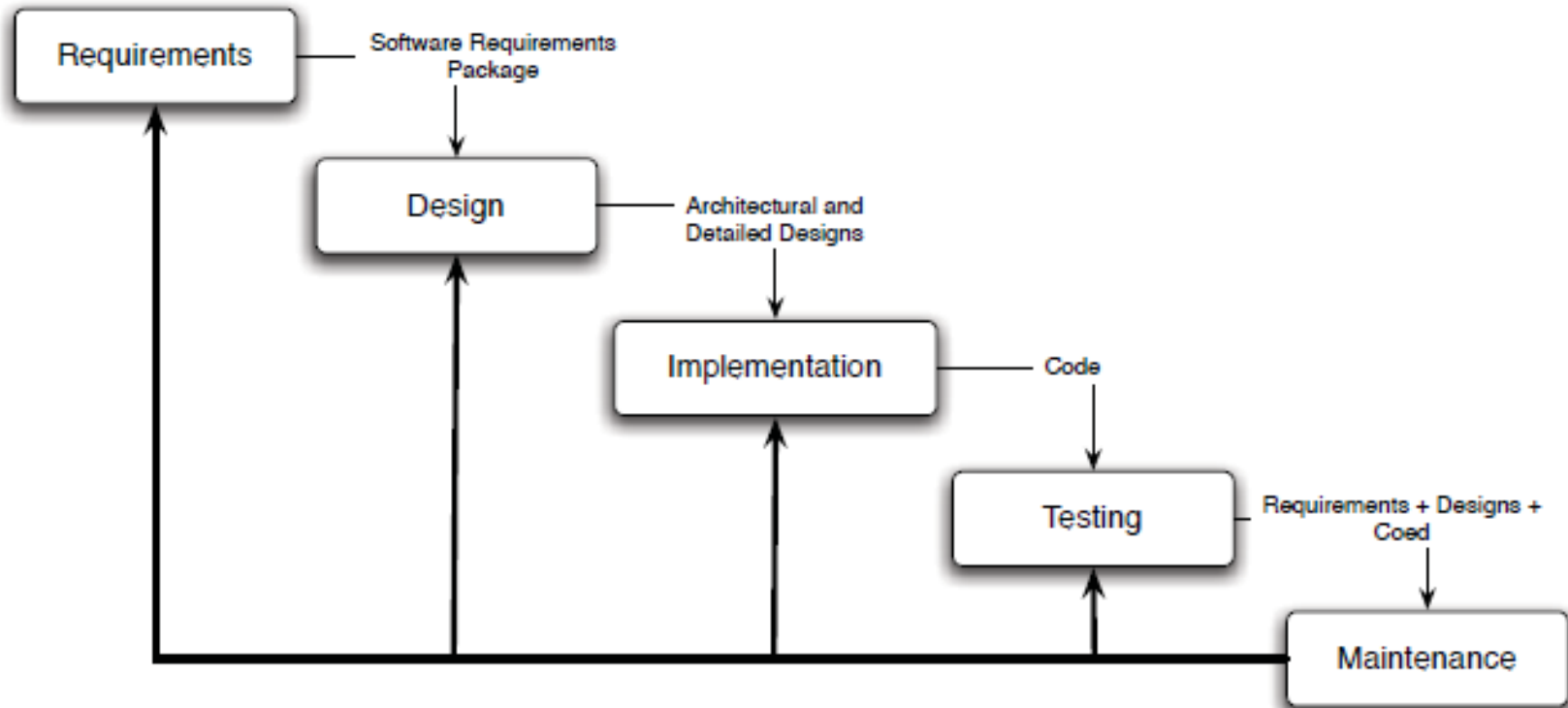
Classification of SDLC models

- **Formal Processes - prescriptive**
 - Waterfall and modified waterfall
 - Incremental
 - Evolutionary
- **Agile Processes**
 - Extreme Programming
 - Scrum
 - Kanban

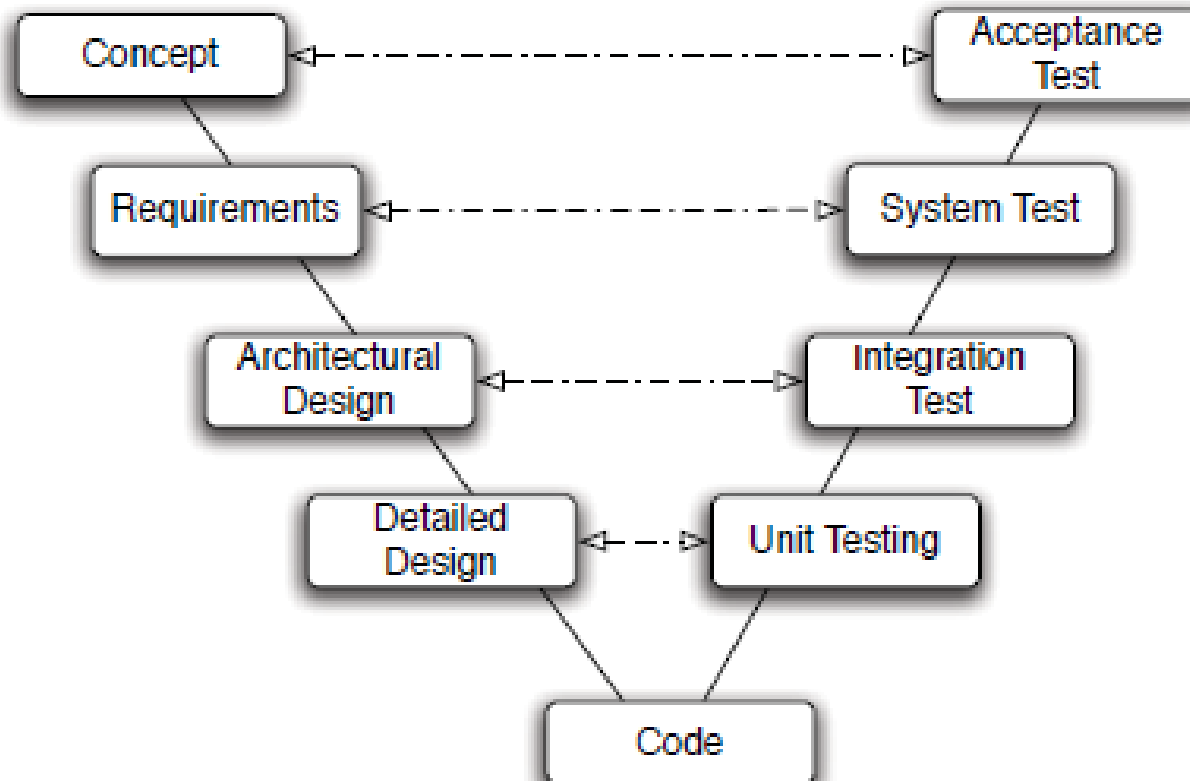
Waterfall



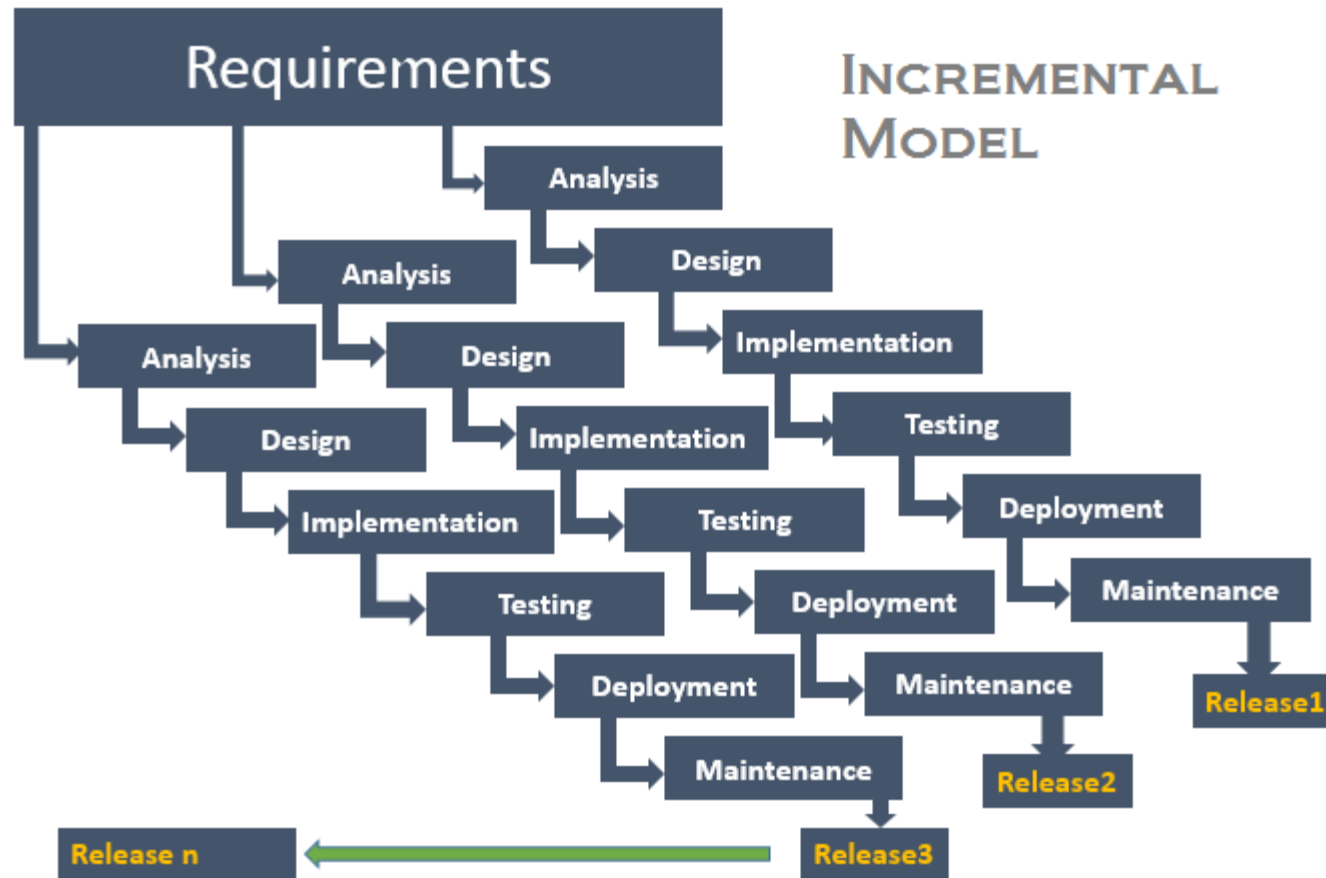
Modified Waterfall



V Model

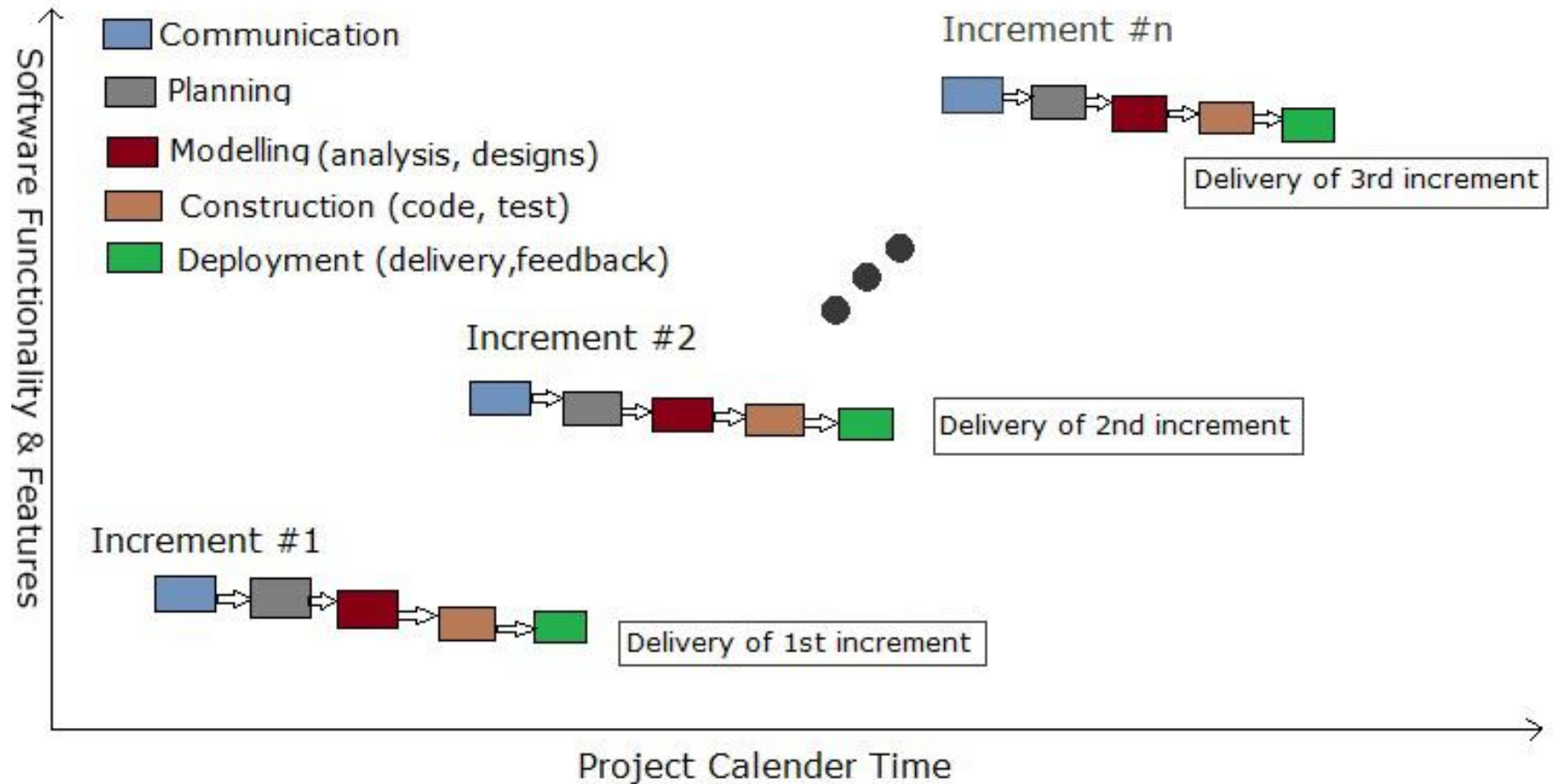


Incremental



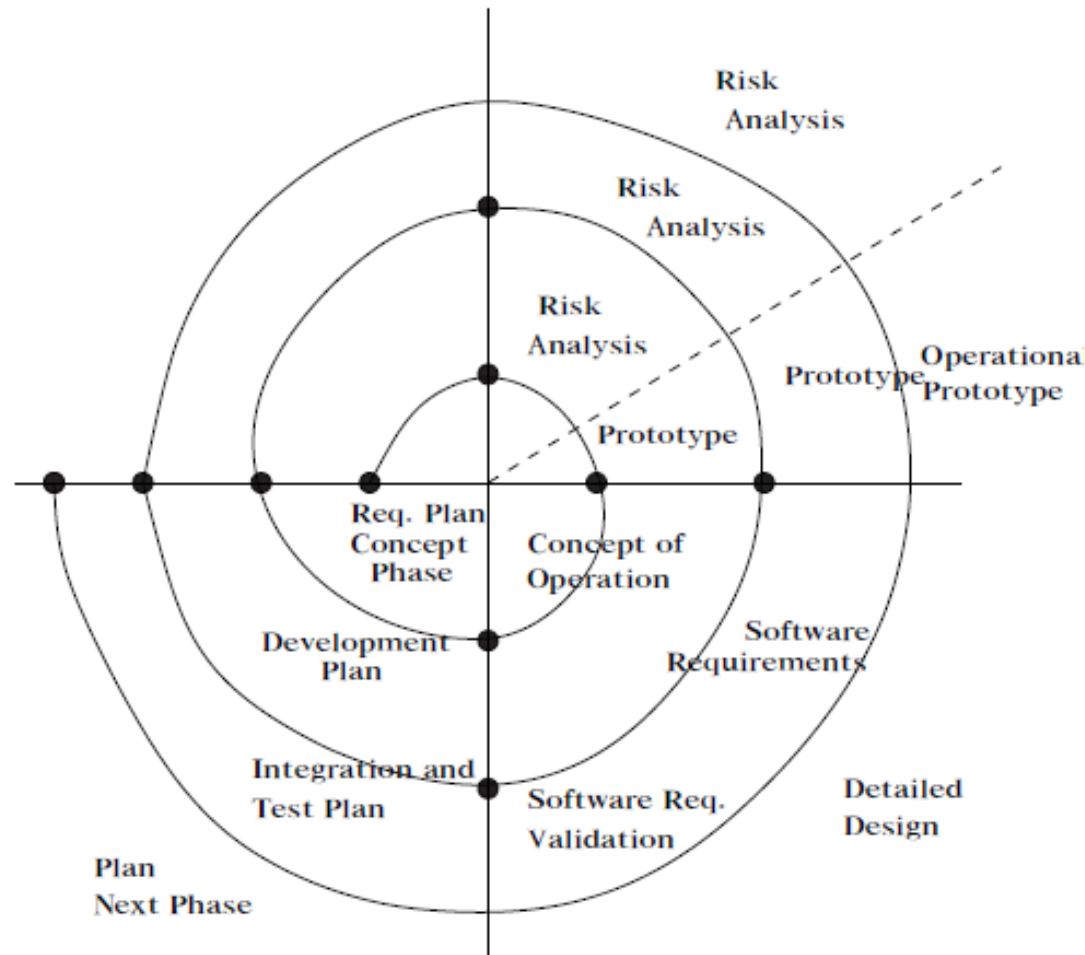
<http://testingfreak.com/incremental-model-software-testing-advantages-disadvantages-incremental-model/>

Incremental



https://en.wikipedia.org/wiki/Incremental_build_model

Evolutionary (iterative)



In class activity - case study

ABC Global is a leading global IT company offering software solutions for telecommunication companies. The solutions include charging systems for mobile phones, multimedia and network solutions.

One of the company's main IT solutions is the Intelligent Network Data Provisioning system that has been in use by mobile providers, such as Telstra, Vodafone and Optus, over the past 15 years. However, due to a sudden increase in the mobile customer base and the variety of services the current system cannot meet the throughout demands, and therefore ABC Global is faced with the challenge of replacing the current system with a state-of-the-art, cloud-based system which will serve the customer needs into the future.

As a project manager choose the appropriate SDLC for developing the new system and convince your manager your choice for the lifecycle.

Software System Evolution

- **Software Engineering Institute (1980)**
- **Capability Maturity Model (CMM): Maturity Levels, Key Process Areas, Goals, Common Features, Key Practices**
- **Software Process Improvement and Capability dEtermination (SPICE)**
- **Traditional Software vs Modern Software**
- **Characteristics of modern software**

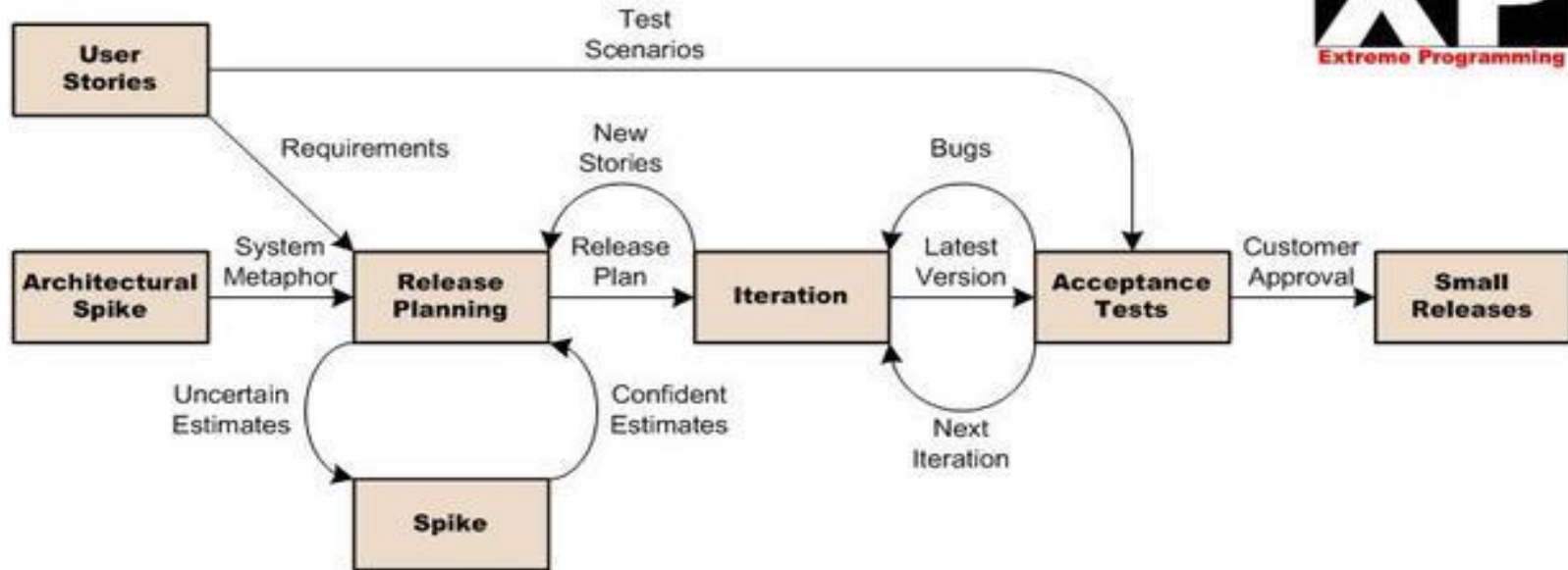
Agile Principles

- Uses an *iterative approach to software* development
- focus on the *code (deliverables)* rather than the *more formal processes*
- evolve the *working software quickly* to meet *changing requirements*

Agile Manifesto (2001)

- ***Individuals and interactions*** over processes and tools
- ***Working software*** over comprehensive documentation
- ***Customer collaboration*** over contract negotiation
- ***Responding to change*** over following a plan

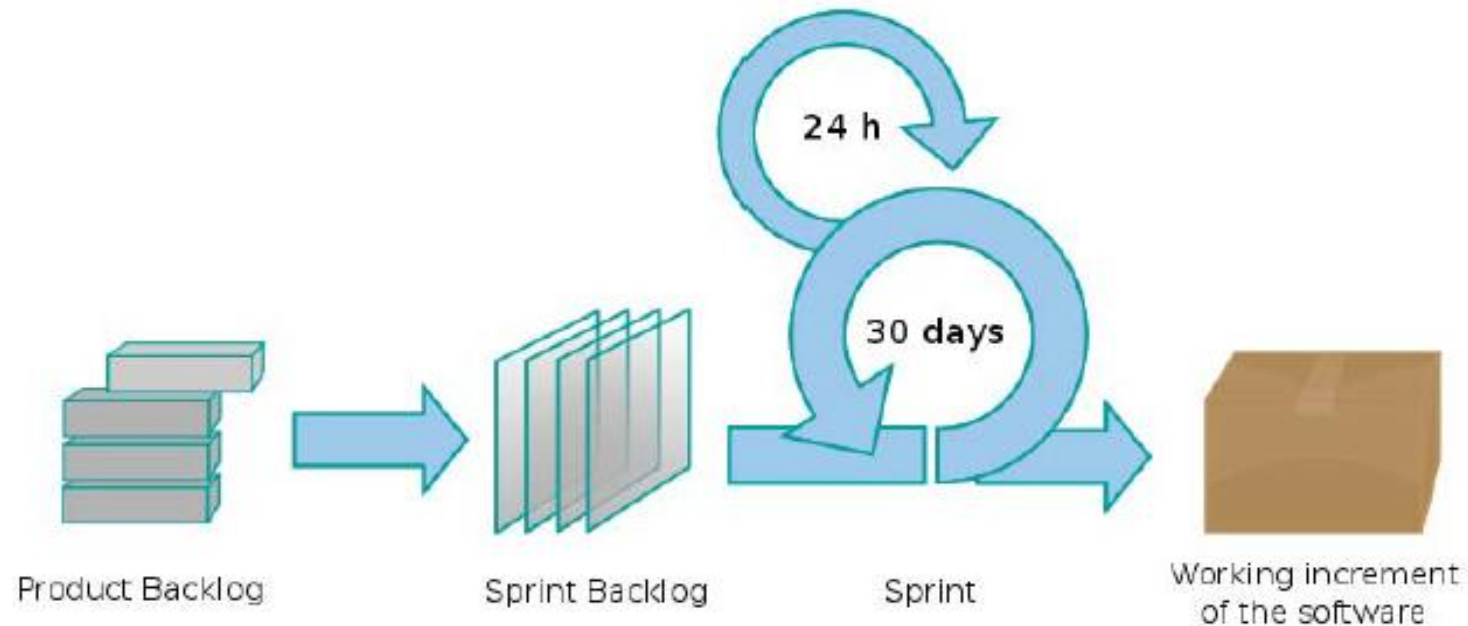
Extreme Programming



<https://7bsp1018.wikispaces.com/eXtreme+Programming>

Incremental planning, Small Releases, Simple Design, Test First Development, Re-factoring, Pair Programming, Continuous Integration, Sustainable Pace, On-site Customer

Scrum



Sprint, Product Backlog, Sprint Backlog, Scrum Team, Product Owner, Scrum Master, Development Team, Sprint Planning Event, Daily Scrum, Sprint Review Meeting, Sprint Retrospective